

We claim:

1. A method, comprising:
 - recording intrinsic electrograms, including QRS complexes, of a left and a right ventricle;
 - determining a timing relationship between intrinsic electrograms of the left and the right ventricle; and
 - selecting one or more ventricular chambers in which to provide pacing pulses based on the timing relationship between intrinsic electrograms of the left and the right ventricle.
2. The method of claim 1, where determining the timing relationship includes calculating a delay between a left ventricular and a right ventricular sensed intrinsic ventricular depolarizations and measuring a duration interval of one or more QRS complexes; and
 - selecting one or more ventricular chambers includes selecting one or more ventricular chambers in which to provide pacing pulses based on the duration interval of the QRS complex and the delay between the left ventricular and the right ventricular sensed intrinsic ventricular depolarizations.
3. The method of claim 2, wherein selecting one or more ventricular chambers includes suggesting pacing in a left ventricle when the duration interval of the one or more QRS complexes is greater than or equal to a first threshold value and the difference between the left ventricular and the right ventricular sensed intrinsic ventricular depolarizations is greater than a second threshold value.
4. The method of claim 3, wherein suggesting includes setting the first threshold value at 120 milliseconds and the second threshold value at zero (0).

5. The method of claim 2, wherein suggesting one or more ventricular chambers includes suggesting pacing in both the left ventricle and the right ventricle when the duration interval of one or more QRS complexes is greater than or equal to a first threshold value and the difference between the left ventricular and the right ventricular sensed intrinsic ventricular depolarizations is greater than a second threshold value.
6. The method of claim 5, wherein suggesting includes setting the first threshold value at 120 milliseconds and the second threshold value at zero (0).
7. The method of claim 2, wherein suggesting one or more ventricular chambers includes suggesting pacing in a right ventricle when the duration interval of one or more QRS complexes is greater than or equal to a first threshold value and the difference between the left ventricular and the right ventricular sensed intrinsic ventricular depolarizations is greater than a second threshold value.
8. The method of claim 7, wherein suggesting includes setting the first threshold value at 120 milliseconds and the second threshold value at zero (0).
9. The method of claim 2, wherein sensing intrinsic ventricular depolarizations includes sensing intrinsic ventricular depolarizations from a left ventricular free wall and an apex of a right ventricle.
10. The method of claim 2, wherein calculating the delay includes detecting peaks of the sensed intrinsic ventricular depolarizations and calculating the delay between the detected peaks of the intrinsic ventricular depolarizations sensed from the left and the right ventricles.

11. The method of claim 2, wherein measuring the duration interval of one or more QRS complexes includes recording a surface ECG that includes the one or more QRS complexes and measuring the duration interval of the one or more QRS complexes from the recorded surface ECG.

12. A method, comprising:

sensing intrinsic ventricular depolarizations, including QRS complexes, of a left ventricle and a right ventricle;

calculating a delay between a left ventricular and a right ventricular sensed intrinsic ventricular depolarizations;

measuring a duration interval of one or more QRS complexes; and

selecting one or more ventricular chambers in which to provide pacing pulses based on the duration interval of the QRS complex and the delay between the left ventricular and the right ventricular sensed intrinsic ventricular depolarizations.

13. The method of claim 12, wherein selecting one or more ventricular chambers includes suggesting pacing in a left ventricle when the duration interval of the one or more QRS complexes is greater than or equal to a first threshold value and the difference between the left ventricular and the right ventricular sensed intrinsic ventricular depolarizations is greater than a second threshold value.

14. The method of claim 13, wherein suggesting includes setting the first threshold value at 120 milliseconds and the second threshold value at zero (0).

15. The method of claim 12, wherein suggesting one or more ventricular chambers includes suggesting pacing in both the left ventricle and the right ventricle when the duration interval of one or more QRS complexes is greater than or equal to a first

threshold value and the difference between the left ventricular and the right ventricular sensed intrinsic ventricular depolarizations is greater than a second threshold value.

16. The method of claim 15, wherein suggesting includes setting the first threshold value at 120 milliseconds and the second threshold value at zero (0).

17. The method of claim 12, wherein suggesting one or more ventricular chambers includes suggesting pacing in a right ventricle when the duration interval of one or more QRS complexes is greater than or equal to a first threshold and the difference between the left ventricular and the right ventricular sensed intrinsic ventricular depolarizations is less than or equal to a second threshold value.

18. The method of claim 17, wherein suggesting includes setting the first threshold value at 120 milliseconds and the second threshold value at zero (0).

19. The method of claim 12, wherein sensing intrinsic ventricular depolarizations includes sensing intrinsic ventricular depolarizations from a left ventricular free wall and an apex of a right ventricle.

20. The method of claim 12, wherein calculating the delay includes detecting peaks of the sensed intrinsic ventricular depolarizations and calculating the delay between the detected peaks of the intrinsic ventricular depolarizations sensed from the left and the right ventricles.

21. The method of claim 12, wherein sensing intrinsic ventricular depolarizations includes recording a surface ECG that includes one or more QRS complexes and

measuring the duration interval of the one or more QRS complexes from the recorded surface ECG.

22. An apparatus, comprising:

at least one receiver, where the receiver receives intrinsic electrograms of a left ventricle and a right ventricle;

a controller, where the controller determines a timing relationship between intrinsic electrograms of the left and right ventricle; and

a ventricular chamber selector coupled to the controller, where the ventricular chamber selector selects one or more ventricular chambers in which to provide pacing pulses based on the timing relationship between intrinsic electrograms of the right and left ventricle.

23. The apparatus of claim 22, wherein the intrinsic electrograms include a left ventricular and a right ventricular sensed intrinsic ventricular depolarizations having QRS complexes, and wherein the controller calculates a delay between the left ventricular and the right ventricular sensed intrinsic ventricular depolarizations and is adapted to receive a duration interval of one or more QRS complexes, and wherein the ventricular chamber selector selects one or more ventricular chambers in which to provide pacing pulses based on the duration interval of the QRS complexes and the delay between the left ventricular and the right ventricular sensed intrinsic ventricular depolarizations.

24. The apparatus of claim 23, wherein the at least one receiver receives a QRS duration interval of one or more QRS complexes measured from a surface ECG.

25. The apparatus of claim 23, wherein the ventricular chamber selector identifies a left ventricle for pacing when the duration interval of the one or more QRS complexes is

greater than or equal to a first threshold value and the difference between the left ventricular and the right ventricular sensed intrinsic ventricular depolarizations is greater than a second threshold value.

26. The method of claim 25, wherein suggesting includes setting the first threshold value at 120 milliseconds and the second threshold value at zero (0).

27. The apparatus of claim 23, wherein the ventricular chamber selector identifies both a left ventricle and a right ventricle for pacing when the duration interval of the one or more QRS complexes is greater than or equal to a first threshold value and the difference between the left ventricular and the right ventricular sensed intrinsic ventricular depolarizations is greater than a second threshold value.

28. The method of claim 27, wherein suggesting includes setting the first threshold value at 120 milliseconds and the second threshold value at zero (0).

29. The apparatus of claim 23, wherein the ventricular chamber selector identifies a right ventricle for pacing when the duration interval of one or more QRS complexes is greater than or equal to a first threshold value and the difference between the left ventricular and the right ventricular sensed intrinsic ventricular depolarizations is less than or equal to a second threshold value.

30. The method of claim 29, wherein suggesting includes setting the first threshold value at 120 milliseconds and the second threshold value at zero (0).

31. The apparatus of claim 23, wherein the controller detects peaks of the sensed intrinsic ventricular depolarizations and calculates the delay between the detected peaks

of the intrinsic ventricular depolarizations sensed from the left and the right ventricles.

32. The apparatus of claim 22, wherein the apparatus is incorporated into a medical device programmer.

33. The apparatus of claim 22, wherein the apparatus is incorporated into an implantable pulse generator, where the implantable pulse generator includes a first cardiac lead and a second cardiac lead, where the first and second cardiac leads each include electrodes for sensing the intrinsic intracardia electrograms from the left ventricle and the right ventricle.